IPSC
Air Quality

Grand Canyon Trust
Utah Chapter Sierra Club

January 23, 2004

Rick Sprott, Director
Utah Division of Air Quality
150 North 1950 West
Salt Lake City, Utah 84116

RE: Comments on Intent to Approve "CO PSD Major Modification of Approval Order DAQE-049-02" at Intermountain Power Plant's Units 1 and 2 (DAQE-IN0327009-03)

Dear Mr. Sprott:

The Grand Canyon Trust and Utah Chapter Sierra Club respectfully submit the following comments regarding the December 2002 Intent to Approve the "CO PSD Major Modification of Approval Order DAQE-049-02" at Units 1 and 2 of the Intermountain Power Plant and DAQE-IN0327009-03.

According to the Notices of Intent (NOIs) submitted by Intermountain Power Service Corporation (IPSC) for this proposed approval order (AO), IPSC has requested changes to the modifications for upgrading its Utah power plant that were previously authorized by the Utah Division of Air Quality (UDAQ) under the January 11, 2002 AO (DAQE-049-02). IPSC has also requested approval to install overfire air and upgrades to the low NO_x burners for nitrogen oxides (NO_x) control, which will significantly increase carbon monoxide (CO) emissions. (DAQE-IN0327009-03). These upgrades to IPSC's NO_x controls are necessary for the modifications initially permitted under the January 11, 2002 AO and currently subject to the proposed intent to approve to net out of prevention of significant deterioration (PSD) review. However, UDAQ appears to be treating the more recently requested modifications as discreet and separate from the overall plant upgrade initially authorized in January 2002. We do not believe the changes discussed in the current intent to approve can be reviewed independently of the modifications initially authorized by the January 11, 2002 AO. IPSC has proposed changes to the emission-increasing modifications originally authorized in January 2002. Plus, the NO_x controls are necessary to prevent a significant net emissions increase due to the plant upgrade. UDAQ should have reviewed these two permit actions together. Thus, we have reviewed DAQE-049-02 as issued in January 2002 and the current intent to approve (DAQE-IN0327009-03) as a whole.

Based on a review of the NOIs associated with the original DAQE-049-02 and those associated with the current proposal to modify DAQE-049-02, we have found that the original permit was issued in violation of Utah's air quality rules. The current intent to approve also does not comply with Utah's rules. Yet, IPSC has already begun construction of the modifications subject to the January 11, 2002 AO. Further, IPSC has already installed and operated the overfire air at Unit 1, one of the projects that must be authorized by the current intent to approve before construction begins.

Thus, we believe that immediate action is required by UDAQ to withdraw the January 11, 2002 AO, pull back the current intent to approve, and issue a new intent to approve that includes enforceable and creditable limits on the actual emissions of NO_x, sulfur dioxide (SO_2) and any other affected pollutants to ensure that there will in fact be no significant net emissions increase of any regulated air pollutant due to the plant upgrades at IPSC. Further, UDAQ should more thoroughly evaluate the appropriate control technology for NO_x emissions under the state's regulation that requires all modifications to existing sources meet best available control technology (BACT). Alternatively, UDAQ must require IPSC to meet all PSD permitting requirements including BACT for its significant plant upgrade. Our specific comments regarding these claims are detailed below.

Neither the January 11, 2002 AO or the Current Intent to Approve Conform to Utah's Permitting Regulations

Background

On April 4, 2001, IPSC submitted a notice of intent for modification to its power plant (i.e., the Intermountain Power Plant). The modifications were to provide for increased generating capacity at each unit (from 875 megawatts (MW) each to 950 MW each) and increased heat input capacity at each unit (from 8,352 million BTU per hour (MMBtu/hr) to 9,225 MMBtu/hr each), among other things. IPSC projected that the amount of coal burned each year would increase from approximately 5.3 to 5.6 million tons. Clearly, air pollution emissions would increase as a result of the modifications. Indeed, IPSC claimed that, without modification to its NO_x controls, the modifications would increase NO_x emissions from both units by a total of 2,816 tons per year (tpy), greatly above the 40 ton per year PSD significance level.[1] While it does not appear that IPSC ever quantified to the UDAQ the increase that would occur in SO_2, PM-10 or other pollutants due to the plant upgrades, the increase in amount of coal burned would also increase emissions of these pollutants unless there was a concurrent reduction in air pollution achieved through improvements or upgrades to the plant's pollution control systems or through some other operational limitation.

In the abstract to UDAQ's January 11, 2002 AO, the UDAQ stated that the modification "did not trigger Prevention of Significant Deterioration review since the emission increases (based on base line actual emissions and projected future emissions) were below significant levels." Thus, it appears that UDAQ attempted to apply the "WEPCO"

[1] See Intermountain Power's August 24, 2001 letter to Richard Sprott, Director, Utah Division of Air Quality, page 10.

approach of comparing past actual emissions to future actual emissions when evaluating the emissions increases at IPSC due to these modifications. However, UDAQ did not properly follow the Utah regulations regarding WEPCO in evaluating and permitting these modifications.

Utah's Regulatory Requirements With Respect to the IPSC Modifications

According to Utah Air Quality Rule (UAQR) R307-405-6(2), a "major modification" is subject to the PSD provisions of the Utah regulations. A "major modification" is defined in pertinent part as "any physical change or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Clean Air Act." (UAQR 307-405-1).

"Net emissions increase" is defined (in pertinent part) as follows:

> . . . the amount by which the sum of the following exceeds zero:
> (1) any increase in actual emissions from a particular physical change or change in the method of operation at a source; and
> (2) any other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and *are otherwise creditable.* For purposes of determining a "net emissions increase":
> (a) an increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs between the date five years before construction on the particular change commences; and the date that the increase from the particular change occurs. . . .
>
> (e) *A decrease in actual emissions is creditable only to the extent that:*
> (i) *The old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions*;
> (ii) *It is enforceable at and after the time that actual construction on the particular change begins*. . . .

UAQR R307-101-2. [Emphasis added.]

"Actual emissions" determined as of a particular date are generally based on the average rate, in tons per year, at which an emissions unit actually emitted a pollutant during the two year period prior to a particular date if representative of normal source operations. To determine actual emissions after a modification for a modified electrical utility steam generating unit such as the units at IPSC pursuant to the "WEPCO" rule, "actual emissions following the physical or operational change shall equal the representative actual annual emissions of the unit" as long as certain recordkeeping and reporting requirements are met as defined in the rule. UAQR R307-101-2.

"Representative actual annual emissions" is defined in UAQR R30-101-2 as follows:

> . . . means the average rate, in tons per year, at which the source is projected to emit a pollutant for the two year period after a physical change or change in the method of operation of unit, (or a different consecutive two-year period within 10 years after that change, where the executive secretary determines is more representative of source

operations), considering the effect any such change will have on increasing or decreasing the hourly emission rate and on projected capacity utilization. In projected future emissions the executive secretary shall:

(1) Consider all relevant information, including but not limited to, historical operational data, the company's own representations, filings with the State or Federal regulatory authorities, and compliance plans under Title IV of the Clean Air Act;

(2) Exclude, in calculating any increase in emissions that results from the particular physical change or change in the method of operation at an electric utility steam generating unit, that portion of the unit's emissions following the change that could have been accommodated during the representative baseline period and is attributable to an increase in projected capacity utilization at the unit that is unrelated to the particular change, including any increased utilization due to the rate of electricity demand growth for the utility system as a whole.

The following describes how we believe the analysis of the plant upgrades should be done to comply with the state's permitting rules as they pertain to modified electric utility steam generating units.

First, the actual emissions prior to the modifications for which IPSC requested approval must be calculated. IPSC included this emissions information in its April 4, 2001 NOI based on an average of the years 1999 and 2000, although the company only provided unit-specific data for SO_2 and particulate emissions. We believe the pre-change emissions data should have been provided for each unit separately and then tallied for the entire source.

Second, the representative actual annual emissions after the modifications at the source should be projected. IPSC conceded in its 2001 NOI that the approximately 5.9% increase in the amount of coal burned due to increased capacity at the plant would increase emissions. It is possible that the modifications would also allow for increased hours operation, because of less downtime due to malfunctions and necessary maintenance, than could have occurred during the representative baseline period. If so, then the increased emissions due to more hours of operation should also be included in the post-change actual emissions projection.

Third, any emissions reductions with which IPSC planned to ensure no significant net emissions increase should be evaluated separately. Pursuant to the state's definition of "net emissions increase," such reductions must be in actual emissions (and not just reductions in allowable emissions), must be enforceable, and must occur within the contemporaneous timeframe. Thus, the emission reductions planned by IPSC to net out of review should be enforceable prior to IPSC beginning actual construction on the plant modifications and the emission reductions must occur by the time the upgraded units begin operation.

The January 11, 2002 AO and the Current Intent to Approve Do Not Comply with These Utah Regulations

UDAQ did not follow its regulations as outlined above in issuing the January 11, 2002 AO to IPSC or in the current intent to approve. First, no projections of representative actual annual emissions due to the plant upgrades were given. While IPSC did provide data on its actual emissions prior to the modifications in its April 4, 2001 NOI, neither IPSC or UDAQ projected the plant's representative actual emissions after the modifications.

Second, a review of the NOIs submitted by IPSC makes it clear that the company planned on "netting out" the actual emissions increases that would occur due to the plant upgrades with improvements or changes to pollution control equipment to decrease emissions. IPSC's April 4, 2001 NOI stated that "planned upgrades to pollution control equipment as part of this proposed modification will result in a net emissions decrease for certain criteria pollutants as a result of the project." But no further details complying with the state's definition of "net emissions increase" were provided.

IPSC's April 4, 2001 NOI made clear its "NO_x reduction project" was to "prevent any significant net increases of NO_x due to increased capacity." IPSC later submitted a revision to its NOI to clarify that, instead of the addition of NO_x reduction equipment, it was requesting a federally enforceable limit to essentially ensure no significant net emissions increase. See August 24, 2001 "IPSC Notice of Intent: BACT Resubmittal and Corrections." It appears that the recently proposed addition of overfire air, which is the subject of the current intent to approve, was necessary for the modified plant to meet the requested federally enforceable limit. Indeed, IPSC's March 20, 2003 "Notice of Intent: Revision to Scope of Modification," upon which the current intent to approve is partly based on, makes clear that the "use of [overfire air] will allow [Intermountain Power] to control NO_x without a significant net increase due to the dense pack modifications."

Similarly, the April 4, 2001 NOI also discusses planned improvements to the plant's SO_2 control system to increase removal efficiency of SO_2 emissions.

Yet, neither the January 11, 2002 AO or the current intent to approve include any enforceable requirements to ensure reductions in actual emissions of these pollutants will occur, as would be required for any reductions to be considered creditable and available for netting out of PSD review. Construction has begun on the plant upgrades with no enforceable requirements in place to reduce NO_x, SO_2, PM-10, or other pollutant emissions.

Instead of following the applicable Utah regulations as described above, it appears that UDAQ simply reduced IPSC's allowable emission rates to ensure that there would not be a significant increase in allowable emissions at the plant due to the increase in plant capacity. This "allowable to allowable" comparison is not authorized in Utah's rules. Further, the modified allowable emission limits in IPSC's AO will not ensure that any

Did this happen? Is new allowable < old actual?

reductions in actual emission occur because the facility was operating at emission rates lower than the modified allowable emission limits.

For example, the revised NO_x emission limit of the January 2002 AO is 0.461 lb/MMBtu. However, according to the data provided in IPSC's April 4, 2001 NOI, the plant never emitted at that high of an emission rate in the five years of emissions data given (i.e., 1996-2000). The pre-modification two-year average actual NO_x emission rate was 0.40 lb/MMBtu.

Similarly, the revised SO_2 emission limit in the January 2002 AO of 0.138 lb/MMBtu is much higher than the actual rate of emissions from the plant as provided in IPSC's April 4, 2001 NOI. The pre-modification two-year average actual SO_2 emission rate was 0.06 lb/MMBtu, less than half of the allowable emission rate. Thus, the revised emission limits of the January 2002 AO do not provide any creditable emissions reductions to be used to net out of PSD review.

Without creditable emissions reductions to net out of review, the plant modifications are considered major modifications at least for NO_x and SO_2 and probably other pollutants such as PM-10. The January 2002 AO and the current intent to approve illegally authorize the modifications without a requirement to ensure creditable emission reductions to net out of PSD review, or without requiring compliance with all PSD permitting requirements for the plant upgrade. Thus, UDAQ must withdraw the January 11, 2002 AO and the current AO and issue a new intent to approve for these modifications at IPSC's power plant that complies with the state regulations either by ensuring a proper net out of PSD review or by requiring compliance with all PSD permitting requirements.

DAQ Erred in Issuing the January 11, 2002 AO and In Proposing The Current Notice of Intent Without Requiring BACT for NO_x at IPSC's Power Plant

Utah's preconstruction permitting rules require that, for any modification of a source to be approved, the degree of pollution control must represent BACT. UACR R307-401-6(1). Although Utah's BACT requirement applies to minor sources and modifications as well as major sources, the same definition of BACT in R307-101-2 applies no matter what type of permit action is subject.

As part of the modifications originally authorized in the January 11, 2002 AO, UDAQ required IPSC to provide a BACT analysis for NO_x apparently to comply with these state regulations. Yet the January 2002 AO did not include any determination of BACT. Further, IPSC did not provide a NO_x BACT analysis for the modifications that are the subject of the current intent to approve, and the proposed intent to approve does not include any determination of BACT for NO_x. In fact, we believe that overfire air for NO_x control does not represent BACT for NO_x.

IPSC submitted a BACT analyses for NO_x on May 29, 2001 and August 24, 2001.[2] IPSC's May 29, 2001 BACT submittal proposed that ultra low NO_x burners be selected as BACT for the project.[3] However, IPSC projected that the most effective control technology in terms of NO_x emissions reductions would be use of selective catalytic reduction (SCR). IPSC projected that SCR at the existing two units would reduce NO_x emissions by over 19,000 tons per year, at a cost of $1,140 per ton of pollutant removed. IPSC's May 2001 BACT submittal claimed that UDAQ considered costs up to $2000 per ton of pollutant reduced to represent reasonable costs for BACT for this "minor modification." Thus, SCR at a cost of $1,140 per ton of pollutant removed should clearly have been considered reasonable by UDAQ.[4]

In fact, use of SCR and a corresponding 0.07 lb/MMBtu emission limit have been recommended as BACT for virtually all recently proposed pulverized coal-fired power plants in the West including IPSC's proposed Unit 3 at the Intermountain Power Plant site. Both the proposed Roundup power plant in Montana and the WYGEN 2 power plant in Wyoming are subject to a NO_x emission rate of 0.07 lb/MMBtu with SCR. UDAQ must consider all of this information when determining BACT for NO_x emissions due to the plant upgrades at IPSC's power plant.

Further, other options for NO_x control that would not have the environmental impact of increasing CO emissions by 10,000 tons per year, as will likely occur with overfire air, should have been considered. For example, vendor literature for ultra low NO_x burners claims that NO_x emission rates of 0.15 to 0.17 lb/MMBtu can be obtained.[5] These emission rates are much lower than IPSC's projected design NO_x rate for the overfire air system of 0.37 lb/MMBtu (as discussed in IPSC's September 24, 2003 NOI).

While the claim may be made that the actions in the current intent to approve would not warrant a BACT determination for NO_x, as discussed above, the current intent to approve cannot be legitimately separated from the modifications authorized in January 2002 AO. The plant upgrades will increase NO_x emissions, and thus a BACT determination must be done and a corresponding emission limit or standard must be included in the final AO for these plant modifications.

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[2] IPSC's August 24, 2001 BACT analysis recommended the imposition of a federally enforceable limit on NO_x emissions as BACT, rather than specifying any control technology. However, rather than reflecting any level of the top level of emission reduction achievable, this approach ignored the BACT requirements of the Utah regulations and instead was an attempt to do the bare minimum to try to net out of PSD review.

[3] Interestingly, IPSC also evaluated ultra low NO_x burners with overfire air as part of the May 2001 BACT analysis, but rejected it in part due to the increased CO emissions associated with overfire air.

[4] IPSC improperly inflated the cost effectiveness for all of the pollution reduction technologies considered by comparing the costs of the technology to the level of emission reduction needed to net out of PSD review which, in the case of SCR, was much less than the emission reductions that would be obtained. However, nothing in Utah's regulations provides for BACT to be evaluated based on what is necessary to net out of PSD review. Thus, the costs per ton removed represent "absolute" costs as presented in IPSC's BACT analysis.

[5] See, e.g., *First Commercial Application of B&W's DRB-4Z™ Ultra Low-NO_x Coal-Fired Burner*, available at www.babcock.com/pgg/tt/techpapers.html.

We also believe the plant upgrades should trigger a BACT analysis for other pollutants such as SO_2 and PM-10. However, if a proper netting analysis and subsequent emission limits were imposed for these pollutants, we believe the level of control required will likely be similar to BACT for SO2 and PM-10.

Thank you for considering our comments.

Sincerely,

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